Oak Park Neighborhood Traffic Management Program

Mobility Plan
Final Report

The City of Santa Barbara, California

April, 2005

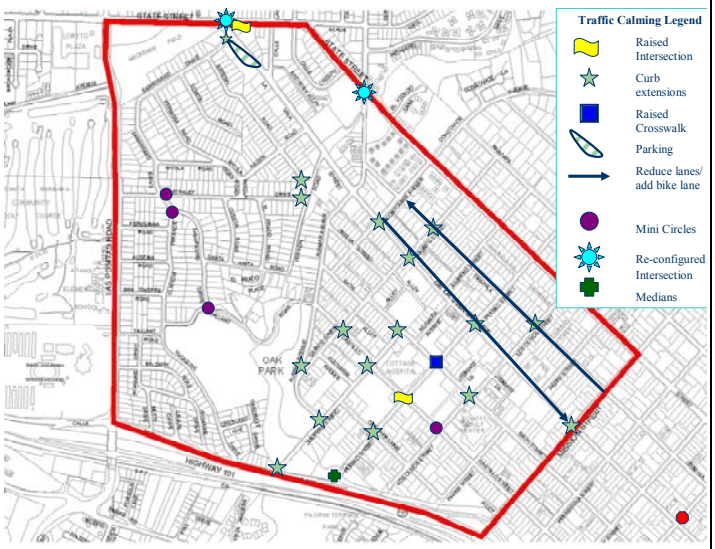
Prepared by:
City of Santa Barbara
Transportation Planning

.

Project Leadership:

City of Santa Barbara
Anthony J. Nisich, Public Works Director
Browning Allen, Transportation Planning Mgr
Robert J. Dayton, Sup. Transportation Planner
Susan McLaughlin, Assistant Transportation Planner

Walkable Communities, Inc.
Dan Burden, Director



This report was prepared by the City of Santa Barbara. For more information on details found in this report contact Susan McLaughlin at 805.897-2669, or smclaughlin@santabarbaraca.gov
Walkable Communities, Inc. provides a helpful website at www.walkable.org.

Table of Contents

Disclaimer: *The contents of this report represents the knowledge, experience, and expertise of the citizens and authors in providing ideas and concepts to improve safety, access, mobility, and livability through traffic calming and traffic management strategies. This report does not constitute a standard, specification, or regulation, and is not intended to be used as a basis for establishing civil liability. The decision to use a particular measure should be made on the basis of an engineering study of the location. This report is not a substitute for sound engineering judgement. Adherence to the principles found in this report can lead to an overall improvement in neighborhood traffic safety.*

This report describes the Oak Park Traffic Management Program and efforts to address traffic concerns and inappropriate motorist behavior, especially improve quality of life within the Oak Park neighborhood. The focus of this effort is the area approximately defined by State, Mission, Highway 101and Las Positas.

BEFORE TRAFFIC CALMING

People speed and cut through neighborhoods for a variety of reasons. Most neighborhood streets built in the past fifty years are designed for higher speeds (30-40 mph), much in excess of the posted 25 mph speed limit that is more appropriate for residential streets. In addition to this, many of our land uses are scattered and result in families making an average of 10 trips a day, increasing the traffic on our streets at any given time. Many motorists are late for events and try to make up time on our roadways, so cutting through residential neighborhoods to avoid congestion and speeding on major arteries have become commonplace. We, as motorists, all contribute to the conditions on our roadways through these practices.

The program began in January 2004 and has been generally well accepted in the neighborhood. It has been collaborative and positive. Early work by city staff and neighborhood leaders in the Oak Park Neighborhood built on public input from various land development projects in the area, as well as existing traffic complaints. A major accomplishment of the pilot project has been an improved channel of communication between residents and neighboring businesses.

Staff worked with Rauch Communications Consultants, a professional community outreach firm, to assist in community acceptance of the program. Rauch provided consultation, planning, and facilitation assistance to staff at several meetings. They also recommended website materials for the City's use as the program progresses through to implementation. ..

We educated approximately thousands of residents in the neighborhood about the program through ? newsletters over the course of 18 months, beginning in January 2004. Additionally, well over a hundred participants attended one or more of the neighborhood meetings. Staff and consultants educated participants in many of the possibilities and limitations of neighborhood planning. Typical complaints received and processed included: zoning enforcement complaints, parks complaints, street maintenance complaints, and requests for signage or additional speed and parking enforcement. We initiated minor improvements including vegetation abatement, inspection of street maintenance requests, sign installation, and minor street improvements and repairs. Neighbors have taken an active role in data gathering, use of the Community Involved Traffic Enforcement (CITE) radar gun, and signing people up for the Pace Car Pledge. Additionally we havebeen successful in bringing local institutions to the meetings: specifically, Sansum Medical Clinic, Santa Barbarba Cottage Hospital , and the Schott Center, in order to discuss how their organization's role fits within the neighborhood.

Bumper stickers, lawn signs, and newsletter templates were distributed. Many of these materials are already being requested by other neighborhoods in the City, and there is an increase in requests for neighborhood traffic relief.

Neighborhood residents understand that traffic problems are typically generated from within the neighborhood itself. Their efforts to ameliorate speeding complaints through Before Traffic Calming measures met with moderate success, and will be continued regardless of any traffic calming installations. However, the Before Traffic Calming measures were not sufficient to ameliorate the speeding violations and meet the demand for speed reduction made by the neighborhood residents.

LIVABILITY CONCERNS IN THE OAK PARK NEIGHBORHOOD

PARKING

The residents participating in the Oak Park Neighborhood Traffic Management Program (NTMP) have identified four areas as having parking constraints for residents as well as for local businesses. The areas include Samarkand, Cottage Hospital, Oak Park, and the Upper De La Vina businesses. The Core Group of the NTMP, in cooperation with City Staff, has recommended an RPP for the Cottage Hospital area as soon as possible in order to better manage the availability of the on-street parking supply, especially considering the impacts of the parking supply during construction . An RPP would establish or modify parking exemptions or restrictions within this portion of the Oak Park Neighborhood.

SAFETY CONCERNS AT OAK PARK & JUNIPERO STREET PEDESTRIAN BRIDGE

STREET TREES

SAFETY

TRAFFIC CALMING

Community involvement and commitment to more livable streets is at the heart of a viable solution that includes Traffic Calming.

Six Step Planning Process

Step 1
The Oak Park Neighborhood was selected by the City as an area that would benefit from traffic calming. For many years, residents have expressed their concerns about speeding and safety. Now, residents are willing to be involved in the problem-solving process. The neighborhood serves as a model in public process and problem solving for Santa Barbara's developing traffic calming program. Residents in the neighborhood participated in enforcement, education, and outreach projects for one year prior to developing a traffic calming team.

Step 2
The City of Santa Barbara collected speed and traffic volumes, mapping the data using Geographic Information Systems (GIS) and held neighborhood workshops. This created a baseline of information for the Traffic Calming Team, and helped to focus the products of the workshop on key concerns.

Step 3
The Traffic Calming Team was oriented to the neighborhood through a walking audit and site inspection. This process was complemented by personal exchange with area residents at several meetings and work sessions, photos, and an audit of all principal streets in the neighborhood. The team measured street widths, estimated block lengths, observed motorists' behaviors, conducted interviews, gathered available maps and generated new ones.

Step 4
The neighborhood hosted a community traffic calming charrette on April 16-18, 2004 in the Oak Park Neighborhood. Residents discussed concerns and were introduced to the principles of traffic calming and the variety of tools at their disposal. The residents then created a prioritized list of the traffic issues they wished to address and worked in design groups to suggest potential solutions to problem areas.

Step 5
Based on the suggestions from the charrette, the traffic calming team developed a system-wide set of solutions to the parking, speeding and volume concerns, prepared conceptual drawings for specific locations, and selected tools for enhanced illustrated drawings. The concepts were reviewed with city staff and prepared for public presentation.

Step 6
The Oak Park Neighborhood hosted a final workshop on April 18, 2004. Residents were presented with a system-wide map and conceptual drawings for the recommended traffic calming treatments. Comments were received and incorporated into the final version of this report, which include the final conceptual design map, and recommended implementation priorities.

The Charrette

Charrette Agenda

I	Introduction
II	Presentation
III	What are the Tools?
IV	Brainstorming the Big Problems
V	Voting on Priorities
VI	Design Tables
VII	Group Reports
VIII	Closing

An evening charrette was held on Friday, April 16, 2004, at Santa Barbara Cottage Hospital. Residents attended the workshop to identify problems, to learn the process, tools and applications of traffic calming, and to offer their input on potential solutions. The most important product of the charrette was to recognize neighborhood "ownership" of the problems, to develop consensus, and to achieve an ongoing willingness to work with neighborhood leaders, elected officials, and City staff to achieve timely and appropriate solutions.

Residents prioritized their values and visions for their community and concluded that a quiet and safe community with caring neighbors was top priorities. Additionally, the attendants' top concerns were speeding on various streets, events in the area, and lack of sufficient parking, insufficient bus service and maintenance of sidewalks. Participants were reminded to keep these visions in mind when developing solutions in the design portion of the charrette.

Following a presentation on traffic calming by Dan Burden of Walkable Communities, Inc., residents were asked to identify what they felt were the most significant problems within their neighborhood. Participants discussed the need to slow traffic in order to restore the safety and residential character of the neighborhood.

After prioritizing these issues, participants divided into work tables to design possible solutions to their concerns, concentrating on those issues that ranked highest in their prioritization exercise. Oak Park Neighborhood residents addressed their concerns by using their knowledge of the issues to propose a variety of traffic calming tools in areas where they felt treatments were necessary.

Area Audits

Walking audits were initially conducted to familiarize the Traffic Calming (TC) Team with the area. Observations include trying to understand the neighborhood's "sense of place," needs, and problems. The walking audits of the Oak Park Neighborhood area produced the following information:

Oak Park Neighborhood is a well-located, established neighborhood comprised of many craftsman and other classic and modern single family and multi-family homes. Housing varies in density. Some smaller homes are being replaced with medical offices near the Cottage Hospital and there have been second stories proposed to many homes in the Samarkand area. Oak Park serves as open space and recreation for the neighborhood. The mixed-use nature of the Oak Park area provides convenient commercial amenities for the residential population of the neighborhood. walking conditions. Upper area roadways are tight, narrow and winding, while lower roadways are better connected and wider. Las Positas, Mission and De La Vina serve the neighborhood as of the arterials linking neighborhoods to Santa Barbara's downtown, medical community and Upper De La Vina businesses.

Nonconforming apartment complexes, successful commercial businesses and an active medical community adds to the demand for on-street parking. In some cases residents and visitors park close to intersections, creating sight distance problems.

A moderate amount of walking activity was observed. There are many conditions leading to speeding, including the ease of picking up speed on the many downhill descents. Residents are concerned with this speed, the resulting noise and danger.

Existing Conditions Street Segments

According to the California Vehicle Code, unless signs show otherwise, the speed limit on streets in residential and business districts is 25 miles per hour. Speed and volume surveys are useful as a tool to determine whether the reasonable majority of drivers are traveling at or below the speed limit . By conducting speed surveys staff determined the speed the majority (85 percent)of the traffic was moving, or the 85th percentile speed on each of the following streets. Further summary statistics on existing conditions are shown in the table on page 11.

De La Vina Street (State to Pueblo)

Residents are concerned with speeding, property damage to rear view mirrors, and difficulty getting out of driveways. Higher speeds in combination with poor sight distances create uncomfortable and risky situations. There are additional problems where Grand meets California. This portion of the neighborhood was well represented at the workshop events.

Posted Speed: 30 mph
85% speed: 36 mph

Las Positas Road (Calle Real to State)

The speeding of High School students and others is an ongoing concern along major lengths of Anapamu. The street has an envy-worthy canopy along much of its length. An overly wide road, and wide intersections contribute to the problem.

Posted Speed: 35 mph
85% speed 38 mph

Stanley Drive

Stanley Drive is characterized by

Posted Speed: 25-30 mph
85% speed 36 mph

Emergency Response

Emergency responders are concerned with the delays experienced at stop controls and speed humps, and look for a traffic management program allowing them to provide essential services under normal demands, and to provide a timely evacuation of hillside homes if that becomes necessary.

Large buses maneuver in these tight roadway spaces, traveling to some of the highest street elevations. Traffic calming features should not hinder bus operations. Traffic calming devices such as humps and speed tables can be disruptive to passengers, especially those sensitive to nerve damage through disease or injury.

Emergency responders test traffic calming devices, such as this mock mini-roundabout, to determine if response times can be kept constant, or improved once the new traffic management plan goes into action. Generally, devices improved response times, assuming that fewer four-way stops and no speed humps will be used in the future.

Concern was raised by residents that some emergency responders may object to some suggested traffic calming treatments. It is essential to include emergency responders in all planning, and to do this in early stages. Responders have much to gain from correct application of tools and especially removal of unwarranted stop signs. To gain acceptance, however, requires close coordination, training and other ongoing efforts. To be efficient, emergency responders need: (1) well placed stations, (2) many points of access to neighborhoods, (3) minimal interruptions on arterial and collector streets and their intersections, and (4) minimal interruptions on local streets. Although local streets are of lesser importance than arterials, collectors and major intersections, they still influence response times.

Responders strive to reach emergencies within 4 minutes of notification.

In 1999 Dan Burden developed a video to show how to ensure emergency responders' ability to navigate through traffic calming devices (available through California Local Government Commission www.lgc.org
This video has been enhanced by a more recent, February 2003, video production of large vehicle operations in the Lower Riviera/Upper East neighborhood of Santa Barbara. The project measured amounts of time it took emergency responders and busses to get through devices simulated with traffic cones.

A chart showing these delays is provided. The values are based on delays at traffic calming devices and where there were no devices, including stop signs or traffic signals.

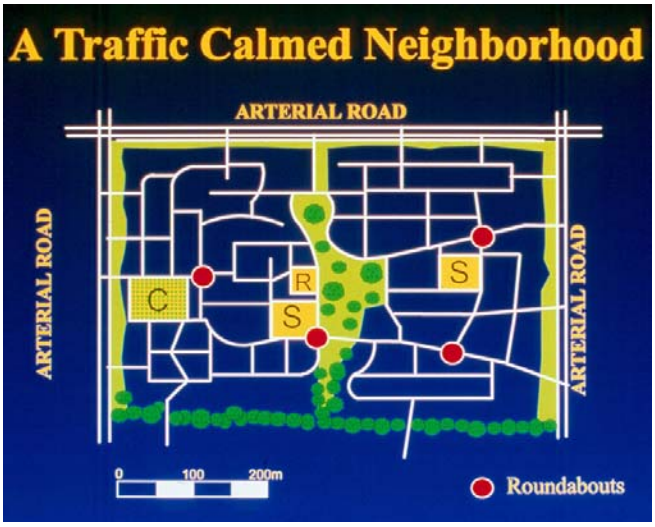
Santa Barbara can benefit from a menu of traffic calming solutions. As a general rule this plan calls for highly affordable, minimal intrusion solutions first and foremost. Adding stop signs, speed humps, and street closures (which are highly invasive tools) are neither recommended nor needed. Indeed, there are so many negative impacts from such "reactive" tools, that they should be seen as last remedies in almost any community.

System-Wide Tools Traffic calming should be applied holistically. This plan calls for a series of steps addressing specific concerns, but which do not simply move the problem from one location to another. Thus, when measures are proposed for Garden Street, solutions need to be applied to Laguna and Olive. When treatments are applied to one downhill street, they should also address other downhill streets that could be taken as an alternative. Meanwhile, streets outside the neighborhood must be monitored to assure that lower elevation through streets such as Anacapa, Santa Barbara and State Streets are not impacted.

Meanwhile, by following key recommendations in this plan and removing four-way stop conditions or traffic signals at key intersections, improved flow and reduced noise will occur. Suitable replacement devices include affordable mini-roundabouts, medians, refuge islands, chokers, chicanes and related tools.

The following delays can be expected for large vehicles

Device	Delay Time
Stop Signs	6-11 seconds
Speed Humps	6-11 seconds
Speed Tables	6-11 seconds
Small Roundabout	4-5 seconds
Neighborhood Roundabout	4-6 seconds
Chicanes and other horizontal tools	2-3 seconds
Curb Radius Reduction	0-3 seconds
Gateways	0 seconds



Santa Barbara's neighborhood traffic calming program is designed to solve problems in a neighborhood, not simply move the problems around. The Oak Park neighborhood was chosen to assess traffic management and traffic calming problems using a comprehensive approach. Illustrated above, traffic management areas are normally established by distinct topographic, roadway and related boundaries.

Temporary Measures

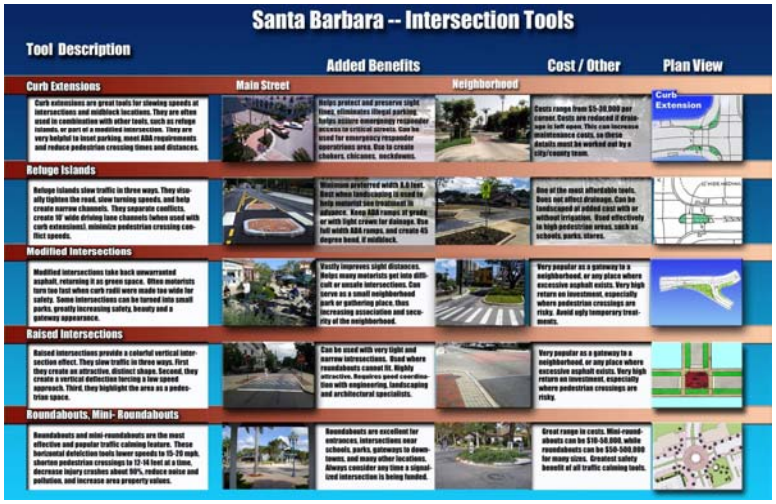
As a general rule, temporary features are discouraged, if they cannot be made attractive. Quite often residents react to the low-quality visual image of temporary curb extensions or mini-roundabouts. If these measures can be made attractive and functional, then test or interim measures may be considered. These treatments should remain on the ground for a minimum of six months before their study and evaluation are considered complete. These treatments should not be placed if ability to provide design and construction of permanent, attractive solutions will not be available. The City of Santa Barbara should develop a suitable family of traffic calming treatments and features to illustrate the acceptance and success of its newly emerging traffic calming program.

An appropriate investment in two dozen or more sites should be made in the next 1-5 years. Although Santa Barbara is no stranger to standard traffic calming features, such as roundabouts and curb extensions, a holistic application of these devices to a specific neighborhood is unique. Much has been learned from previous experience both in Santa Barbara and in other cities about how to provide a comprehensive traffic calming effort. These concepts were applied for the first time in the Lower Riviera/Upper East Neighborhood.

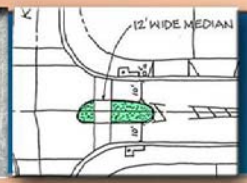
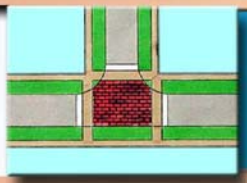
Traffic calming tools include many measures

On the next two pages we provide traffic calming tools by location. Often many tools can be used at a single location.
Those tools that are visual, at intersections, or which add to overall quality of life are most popular and universal.

As a general rule, tools should be at intersections, when possible, and enhance the ability to walk and go places. At times, when block distances are too long, traffic calming tools may need to be placed midblock. A sample of each type of tool is offered in these charts.

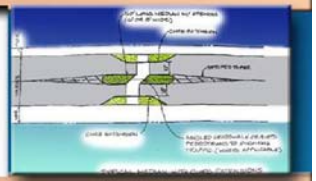
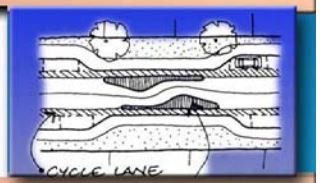
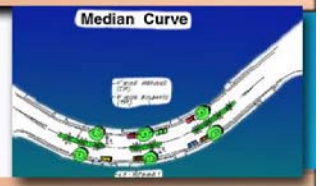


Santa Barbara -- Intersection Tools

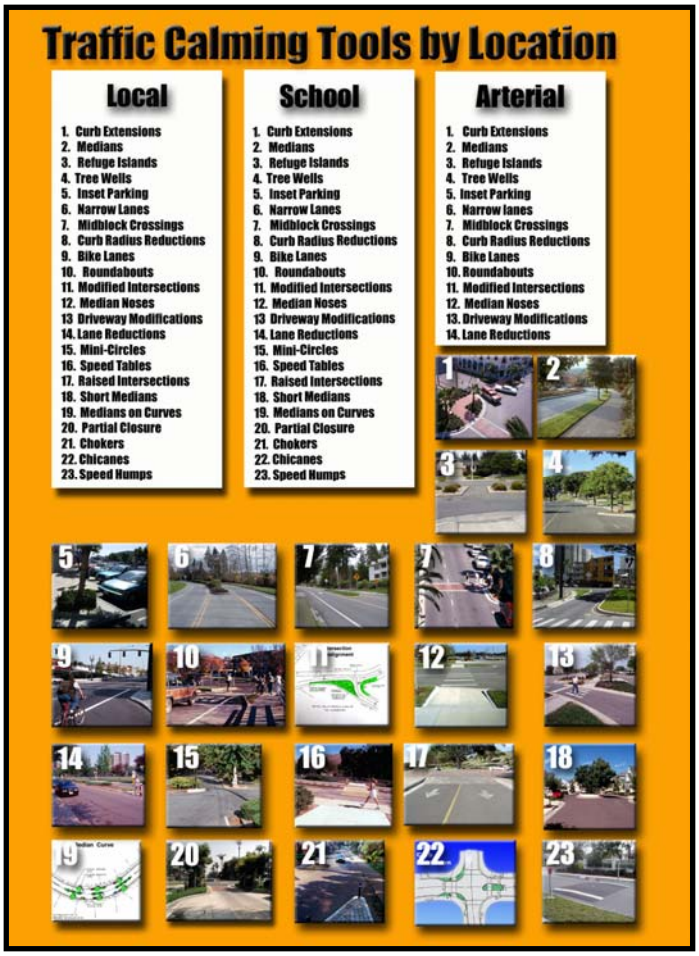
Tool Description	Main Street	Neighborhood	Added Benefits	Cost / Other	Plan View
Curb Extensions Curb extensions are great tools for slowing speeds at intersections and midblock locations. They are often used in combination with other tools, such as refuge islands, or part of a modified intersection. They are very helpful to inset parking, meet ADA requirements and reduce pedestrian crossing times and distances.			Helps protect and preserve sight lines, eliminates illegal parking, helps assure emergency responder access to critical streets. Can be used for emergency responder operatrions area. Use to create chokers, chicanes, neckdowns.	Costs range from $5-30,000 per corner. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team.	
Refuge Islands Refuge islands slow traffic in three ways. They visually tighten the road, slow turning speeds, and help create narrow channels. They separate conflicts, create 10' wide driving lane channels (when used with curb extensions), minimize pedestrian crossing conflict speeds.			Minimum preferred width 8.0 feet. Best when landscaping is used to help motorist see treatment in advance. Keep ADA ramps at grade or with light crown for dainage. Use full width ADA ramps, and create 45 degree bend, if midblock.	One of the most affordable tools. Does not affect drainage. Can be landscaped at added cost with or without irrigation. Used effectively in high pedestrian areas, such as schools, parks, stores.	
Modified Intersections Modified intersections take back unwarranted asphalt, returning it as green space. Often motorists turn too fast when curb radii were made too wide for safety. Some intersections can be turned into small parks, greatly increasing safety, beauty and a gateway appearance.			Vastly improves sight distances. Helps many motorists get into difficult or unsafe intersections. Can serve as a small neighborhood park or gathering place, thus increasing association and security of the neighborhood.	Very popular as a gateway to a neighborhood, or any place where excessive asphalt exists. Very high return on investment, especially where pedestrian crossings are risky. Avoid ugly temporary treatments.	
Raised Intersections Raised intersections provide a colorful vertical intersection effect. They slow traffic in three ways. First they create an attractive, distinct shape. Second, they create a vertical deflection forcing a low speed approach. Third, they highlight the area as a pedestrian space.			Can be used with very tight and narrow intresections. Used where roundabouts cannot fit. Highly attractive. Requires good coordination with engineering, landscaping and architectural specialists.	Very popular as a gateway to a neighborhood, or any place where excessive asphalt exists. Very high return on investment, especially where pedestrian crossings are risky.	
Roundabouts, Mini- Roundabouts Roundabouts and mini-roundabouts are the most effective and popular traffic calming feature. These horizontal defelction tools lower speeds to 15-20 mph, shorten pedestrian crossings to 12-14 feet at a time, decrease injury crashes about 90%, reduce noise and pollution, and increase area property values.			Roundabouts are excellent for entrances, intersections near schools, parks, gateways to downtowns, and many other locations. Always consider any time a signalized intersection is being funded.	Great range in costs. Mini-roundabouts can be $10-50,000, while roundabouts can be $50-500,000 for many sizes. Greatest safety benefit of all traffic calming tools.	

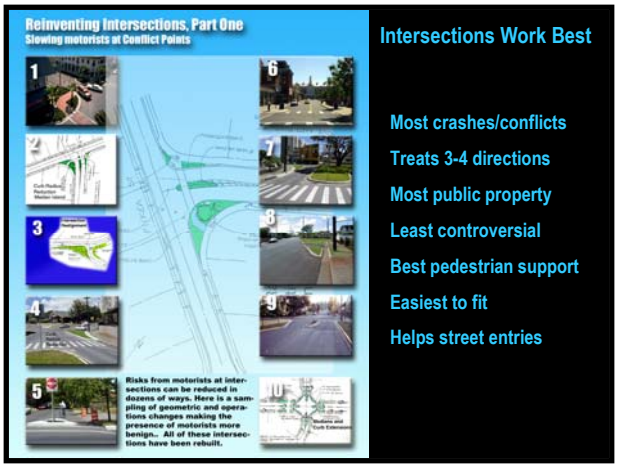
Traffic Calming -- Mid Block Tools

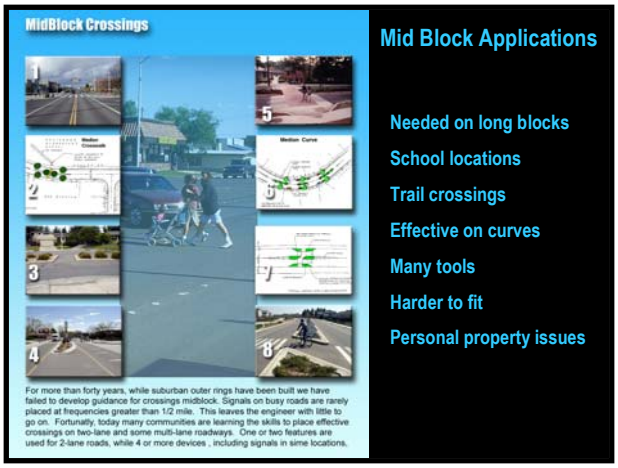
Tool Description

Speed Tables (Flat Top Tables)	Major Street	Added Benefits	Neighborhood	Cost / Other	Plan View
Speed Tables slow traffic through vertical deflection. They are a best tool for pedestrian and bicyclist crossings. Although they are not desired where volumes are high (above 10,000), on bus routes or prime emergency response routes, they have great utility. Their most common placements are at schools, parks, many local streets, and on some moderate volume roads.		Speed tables are highly effective on narrow streets where parking must be maximized, and where other tools take away valuable land or parking. They can be colorized, enhanced with advance markings and made of asphalt or concrete.		Costs range from $4-15,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.	
Chokers					
Chokers reduce speeding by narrowing passageways at appropriate points. They are highly effective when set at 10' width. Sometimes additional visual narrowing is applied. Chokers demand landscaping, so that they can be seen from a distance. Low, slow growth ground cover and tall trees are useful.		Chokers take up only moderate space, keeping parking toward a maximum. Chokers require low ground cover and tall trees for maximum safety and benefit. They are very attractive enhancements to neighborhoods, and quite popular.		Costs range from $4-15,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.	
Chicanes					
Chicanes divert traffic from its intended course. Deflection speeds are held to 15-20 mph. These tools are highly effective and can be made very attractive. These tools work for all size vehicles. On low volume streets no treatments are needed for bicycles, but on higher volume Avenues it may be appropriate to channel bikes along their own independent course.		Chicanes take up longer sections of roads than most tools and must be carefully set between driveways. Meanwhile, they are very popular since they can create attractive mini-parks. Landscaping greatly enhances their performance.		Costs range from $12 -35,000. Costs are reduced if drainage is left open. This can increase maintenance costs, so these details must be worked out by a city/county team. They can be stamped or patterned for added attractiveness.	
Medians					
Raised medians are especially useful around curves and on any overly wide street. Medians are the most attractive and least intrusive treatment. Their benefit to pedestrians is noteworthy. Medians can have openings for driveways, and so fit in many tight locations. Use care to keep medians in plain view, especially around curves and on hills.		Medians may restrict parking, especially on narrower roads. Medians can add significant beauty to neighborhoods. A variety of materials can be used. Concrete curbs are essential to their success.		Costs range from $4-15,000. Costs are low, since they do not impact drainage. Using xeroscaping or other alternative landscaping materials can keep maintenance costs low. Light crowning aids detection and beauty.	
Short Medians					
Short medians are best described as a pregnant median, or a mis-located roundabout. They are highly effective tools, slowing traffic to about 15-20 mph. Short medians are very attractive. However, they remove parking, and often appear to take land away from adjacent properties. Best for local streets.		Short medians can be neighborhood focal points or mini-parks. When parking, driveway placement and other land issues are not an issue they are exceptionally well liked by the entire neighborhood. Tall trees should be planted.		Costs range from $10-25,000. They are often free if added as part of normal street construction. They rarely have impact on drainage. Often short medians are used to preserve a historic tree, cactus, boulder or other feature.	

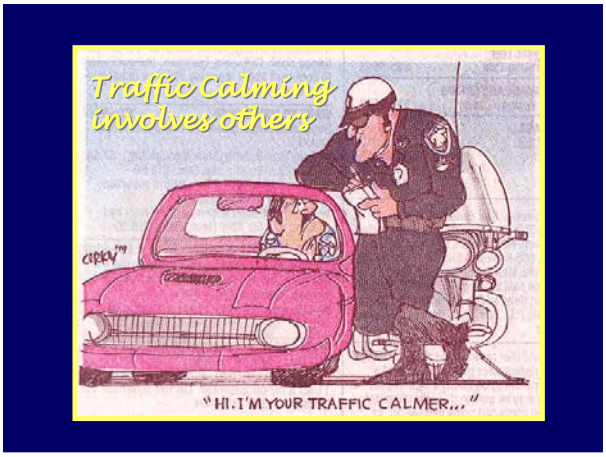
Traffic Calming By Location







Above:
Traffic calming tools include many measures. Those tools that are visual, at intersections, or which add to overall quality of life are most popular and universal. As a general rule, tools should be at intersections, when possible, and enhance the ability to walk and go places.



Right: Ticketing speeding violations in neighborhoods where 60-90% of motorists are speeding is impractical. Traffic calming tools, and other changes to neighborhood streets bring about 85% of motorists into compliance. At such levels it is possible for law enforcement officers to be effective citing those remaining motorists who choose not to comply with the law and the norms of society.

Traffic Calming Tools by Location

Local

1. Curb Extensions
2. Medians
3. Refuge Islands
4. Tree Wells
5. Inset Parking
6. Narrow Lanes
7. Midblock Crossings
8. Curb Radius Reductions
9. Bike Lanes
10. Roundabouts
11. Modified Intersections
12. Median Noses
13 Driveway Modifications
14. Lane Reductions
15. Mini-Circles
16. Speed Tables
17. Raised Intersections
18. Short Medians
19. Medians on Curves
20. Partial Closure
21. Chokers
22. Chicanes
23. Speed Humps

School

1. Curb Extensions
2. Medians
3. Refuge Islands
4. Tree Wells
5. Inset Parking
6. Narrow Lanes
7. Midblock Crossings
8. Curb Radius Reductions
9. Bike Lanes
10. Roundabouts
11. Modified Intersections
12. Median Noses
13 Driveway Modifications
14. Lane Reductions
15. Mini-Circles
16. Speed Tables
17. Raised Intersections
18. Short Medians
19. Medians on Curves
20. Partial Closure
21. Chokers
22. Chicanes
23. Speed Humps

Arterial

1. Curb Extensions
2. Medians
3. Refuge Islands
4. Tree Wells
5. Inset Parking
6. Narrow lanes
7. Midblock Crossings
8. Curb Radius Reductions
9. Bike Lanes
10. Roundabouts
11. Modified Intersections
12. Median Noses
13. Driveway Modifications
14. Lane Reductions

Intersections Work Best

- Most crashes/conflicts
- Treats 3-4 directions
- Most public property
- Least controversial
- Best pedestrian support
- Easiest to fit
- Helps street entries

MidBlock Crossings

For more than forty years, while suburban outer rings have been built we have failed to develop guidance for crossings midblock. Signals on busy roads are rarely placed at frequencies greater than 1/2 mile. This leaves the engineer with little to go on. Fortunatly, today many communities are learning the skills to place effective crossings on two-lane and some multi-lane roadways. One or two features are used for 2-lane roads, while 4 or more devices , including signals in sime locations,

Mid Block Applications

- Needed on long blocks
- School locations
- Trail crossings
- Effective on curves
- Many tools
- Harder to fit
- Personal property issues

Traffic Calming Devices

Roundabouts and Mini-Roundabouts

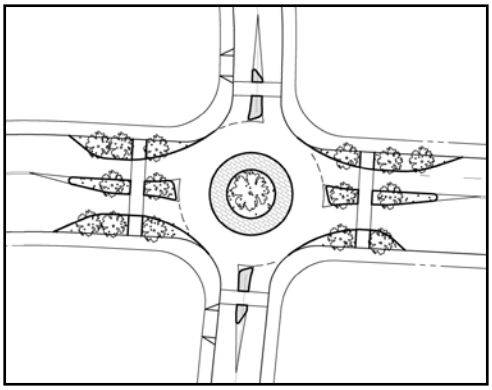
Roundabouts and mini-roundabouts are circular, raised islands located at centers of intersections. Raised islands called "deflector islands" or "splitter islands" modify directions of vehicle travel as motorists enter roundabouts or mini-roundabouts. Roundabouts form hubs for traffic flowing around them into intersecting streets. What do you think about pedestrians having to go out of direction to travel across street?

Roundabouts are located at intersections of local, collector or arterial streets, with one or more crossing roadways. Traffic enters and circulates within roundabouts in counter-clockwise directions and exits by turning right onto desired streets. What would normally be left-turning movements are made easier by circulating traffic around roundabouts and exiting to the right.

Benefits

Roundabouts generally add these benefits to neighborhoods:

- Roundabouts increase vehicle safety by reducing speeds and potential points of vehicle conflict (typically from 32 to 8).
- Roundabouts reduce vehicle speeds by creating horizontal deflection, or a change in direction of vehicles paths through intersections.
- Pedestrian ease of street crossing is improved by reducing the number of conflicts (from 6 to 2, and only one direction at a time), reduced speed, and reduced crossing distance. Crosswalks are typically located one car length away from the intersection, approaching drivers focus only on the pedestrian and not on traffic entering from the left.
- Roundabouts eliminate "stop" signs at intersections, reducing motorist delay, stress and vehicle noise and producing a "calming" effect on traffic flow.
- Roundabouts reduce driver confusion at intersections because drivers entering the roundabout turn right and only yield to vehicles within the roundabout. Drivers exiting the roundabout turn right into the desired street.
- Roundabouts add to the beauty of neighborhood intersections. They often add green space and landscaping and visually reduce otherwise large expanses of pavement.



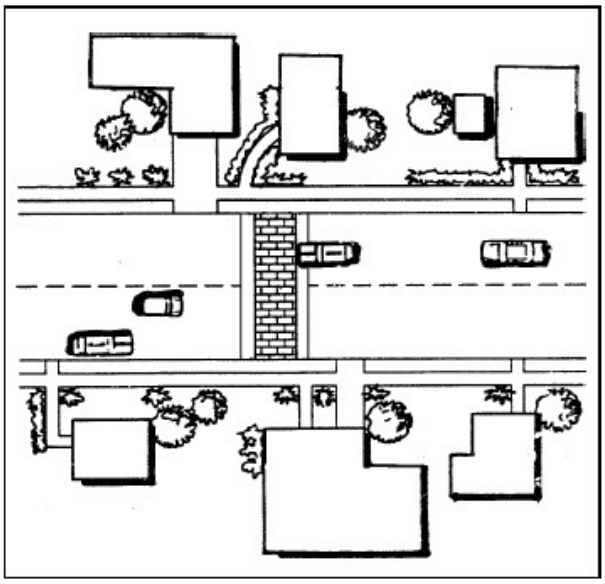
Concerns and Limitations

In general, roundabouts have raised the following concerns or have these limitations:

- Roundabouts may inhibit or eliminate left turning movements of large trucks, buses or emergency vehicles on streets with narrow pavement widths. Individual communities, working with the City, must determine whether or not to allow these large vehicles to turn in front of, or turn left on the left (wrong) side, of the center island. The use of "mountable" splitter islands and center islands (that larger vehicles can drive right over) increases their ability to negotiate roundabouts.
- Roundabouts are generally limited to intersections with slopes of less than five percent.
- Roundabouts may require additional right-of-way to provide required turning movements for vehicles traveling through intersections.
- Roundabout channelized islands may block some driveways on one approach. In most cases this is a modest alteration of access. Local property owners benefit by having lower, safer, traffic movement in front of their driveway and home.

Speed Tables

Speed tables (also called "flat top tables) are essentially flat-topped speed humps. Speed tables have three parts: a ramp up, a flat top section, and ramp down. They are more pleasant to drive over than speed bumps. Speed tables also do not produce as much vehicle noise. They calm speeds of wider ranges of vehicle types than humps.



Benefits

- Speed tables reduce traffic speeds by creating a vertical deflection.
- When combined with speed tables, pedestrian crossings are more visible to motorists.
- Speed tables fit in many narrow roadways, and can often be used where no curbing exists.
- Speed tables are especially helpful around schools, parks and other areas where pedestrians are present.
- Speed tables do not remove parking (unless they are combined with curb extensions).

Concerns and Limitations

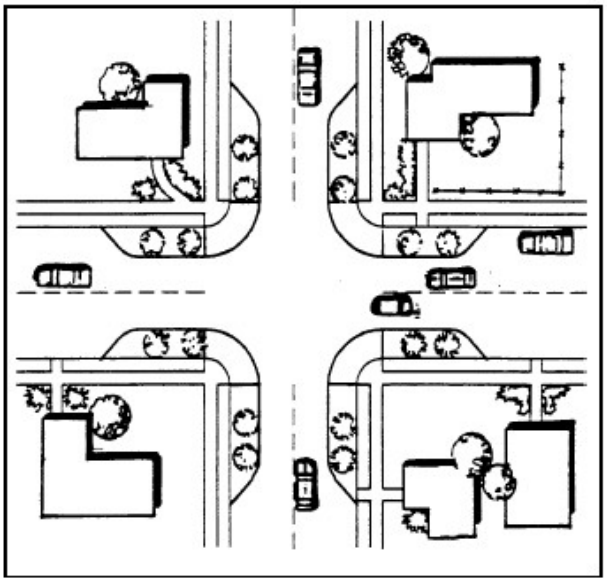
Generally speed tables have raised the following concerns or have these limitations:

Speed tables are not generally used on high volume streets, major emergency response routes or streets with major bus routes.

- Speed tables are generally limited to roads with slopes of less than five percent. When slopes are more than five percent the flat portion of the tables can be extended to 20 or more feet (such as a used in raised intersections)

Bulbouts and Curb Extensions

These two terms can be synonymous because in each case, curbs are extended toward the center of streets. Bulbouts are typically short, abrupt curb extensions used primarily at intersections and key mid-block locations. They extend out from curbs in shapes of a "bulb" reducing pavement widths.



Benefits

- Bulbouts reduce vehicle travel lane widths, decreasing distances pedestrians travel to cross streets. Bulbouts may reduce vehicle speeds by narrowing travel lanes or by introducing horizontal deflection (changing the direction of vehicle's paths).
- Bulbouts improve pedestrian safety by reducing corner radii, discouraging high speed turns. Bulbouts allow pedestrians and vehicles to safely move closer to travel lanes, beyond parked cars, to look for oncoming traffic.
- Bulbouts protect on-street parking by providing physical barriers to keep vehicles in travel lanes.
- Bulbouts are usually designed with landscaping to be more visible to motorists and beautify roadways.

Concerns and Limitations

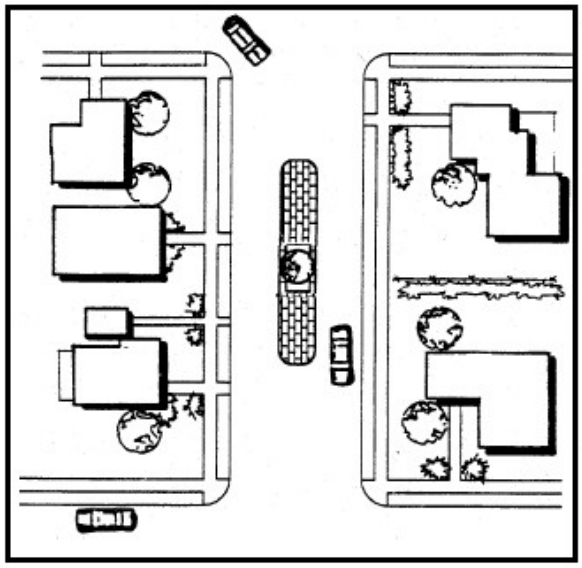
In general, speed tables have raised the following concerns or have these limitations:

- Bulbouts can affect drainage patterns on existing streets.
- Bulbouts generally require vertical landscaping or adequate street lighting to be more visible to oncoming vehicles.

Medians

Medians are raised islands located near centers of roadways. Medians are generally constructed of durable concrete or stone materials. In some cases asphalt is used for curbing.

Painted medians have little or no effect on motorists, and are not considered basic traffic calming tool



Benefits

In general, medians provide the following benefits:

- Medians separate opposing vehicular traffic, increasing motorists' safety.
- Medians can reduce vehicle speeds by creating horizontal deflection in travel ways.
- Medians can reduce the number of conflicts that occur at any one time.
- Medians can eliminate unwanted and unsafe turning movements.
- Medians can reduce speeds by visually tightening a roadway and using up excess pavement width.
- Medians can reduce speed by allowing trees, shrubs or other landscaping. This allows motorists to gauge their speed against tall vertical features.
- Medians can reduce vehicular speeds along curves by preventing vehicles from crossing road centerlines to maintain speed.
- Medians are often combined with pedestrian crossings, providing refuge islands for pedestrians and making pedestrian crossings more noticeable to motorists. On wider medians, pedestrian crossings can include diagonal paths to direct pedestrians to face oncoming traffic and thus increase safety.
- Medians should include landscaping to increase the median's visibility to motorists and beautify roadways.

Concerns and Limitations

In general, medians raised the following concerns or have the following limitations:

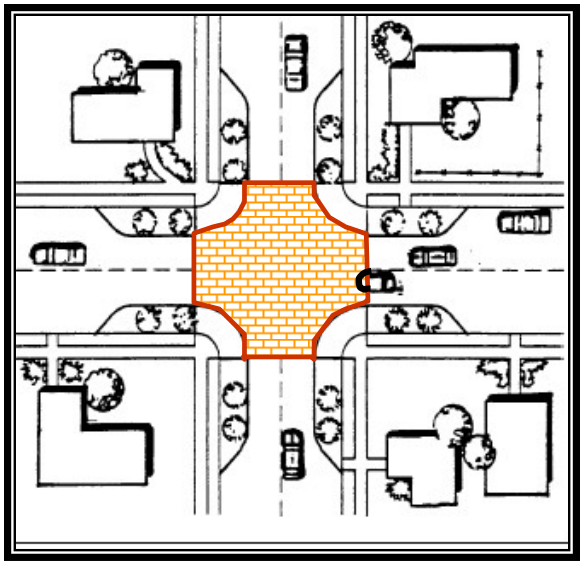
- Medians can eliminate on-street parking.
- Medians can reduce access into some driveways.
- Medians with landscaping require regular maintenance.
- Medians lacking landscaping may be difficult to detect. In this case, added markings, appropriate signs, mounding of median centers, or other features emphasize median locations.

Raised Intersections

Raised Intersections physically raise the street to sidewalk height. The change in grade slows motorists to 15-20 mph.

Curb extensions or modified intersections are often included in the design, making it easier for pedestrians to cross the roadway, and for motorists to enter the primary roadway.

Raised intersections often take advantage of colorized asphalt or concrete. If placed at locations where former 4-way stop controls were used, the controls are often changed to a 2-way stop control, or other less restrictive operation.



Benefits

In general, raised intersections provide the following benefits:

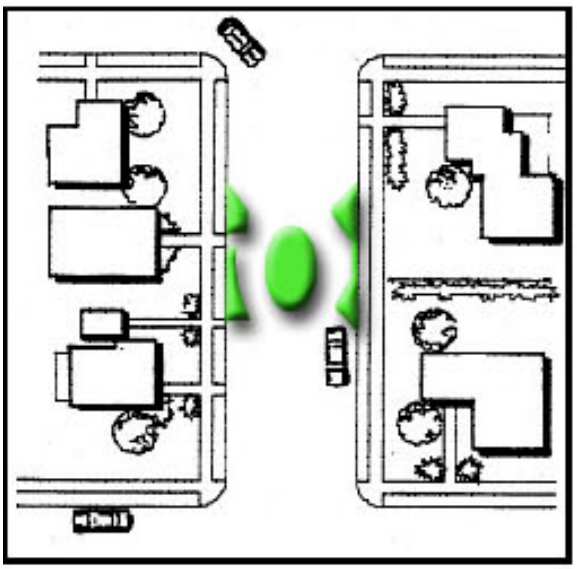
- Raised intersections reduce traffic speeds by creating a vertical deflection.
- When combined with raised intersections, pedestrian crossings are more visible to motorists.
- Raised intersections fit in many narrow roadways, and can often be used where no curbing exists.
- Raised intersections are especially helpful around schools, parks and other areas where pedestrians are present.
- Raised intersections do not remove parking (unless they are combined with curb extensions).

Concerns and Limitations

Generally raised intersections may raise the following concerns or have these limitations:

- Raised intersections are not generally used on high volume streets, major emergency response routes or streets with major bus routes.

Short Medians



Short Medians are raised islands located near centers of long roadways. Short Medians are generally constructed of durable concrete or stone curbing, and then landscaped to create a park effect.

Benefits

In general, short medians provide the following benefits:

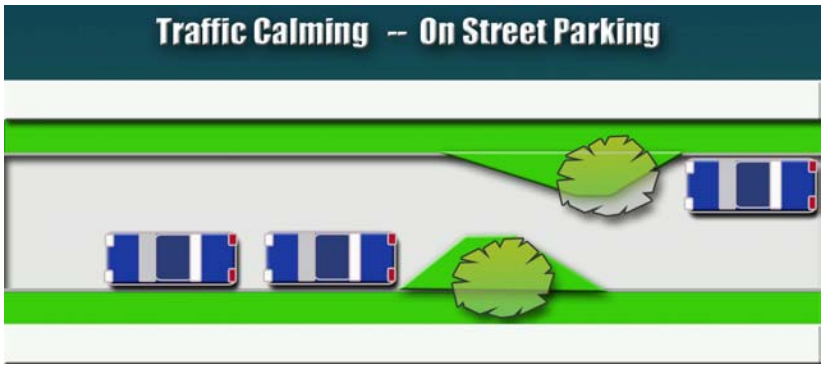
- Short Medians separate opposing vehicular traffic, increasing motorists' safety.
- Short Medians can reduce vehicle speeds by creating horizontal deflection in travel ways.
- Short Medians can reduce speeds by visually tightening a roadway and using up excess pavement width.
- Short Medians can reduce vehicular speeds along curves by preventing vehicles from crossing road centerlines to maintain speed.
- Short Medians are often combined with pedestrian crossings, providing crossing islands for pedestrians, neighborhood gathering places and making pedestrian crossings more noticeable to motorists.
- Short Medians should include landscaping to increase the median's visibility to motorists and beautify roadways.

Concerns and Limitations

In general, short medians raise the following concerns or have the following limitations:

- Short Medians can eliminate on-street parking.
- Short Medians can alter access into some driveways.
- Short Medians with landscaping require regular maintenance.
- Short Medians lacking landscaping may be difficult to detect. In this case, added markings, appropriate signs, mounding of median centers, or other features emphasize median locations.

Chicanes



Chicanes are formed by two or more raised islands often in mid block locations. Chicanes are generally constructed of durable concrete or stone materials. Chicanes are often built as attractive park like settings, but in some cases are built with colorful low-maintenance materials. Neighbors choose the level of beauty of these features. Examples of Chicanes can be found on Stanley Drive in the Samarkand neighborhood.

Benefits

In general, Chicanes provide the following benefits:

- Chicanes slow vehicular traffic, increasing motorists' safety.
- Chicanes can reduce vehicle speeds by creating horizontal deflection in travel ways.
- Chicanes can reduce speeds by visually tightening a roadway and using up excess pavement width.
- Chicanes can reduce speed by allowing trees, shrubs or other landscaping. This allows motorists to gauge their speed against tall vertical features.
- Chicanes should include landscaping to increase the median's visibility to motorists and beautify roadways.

Concerns and Limitations

In general, chicanes raise the following concerns or have the following limitations:

- Chicanes can eliminate on-street parking.
- Chicanes can alter access into some driveways.
- Chicanes with landscaping require regular maintenance.
- Chicanes lacking landscaping may be difficult to detect. In this case, added markings, appropriate signs, mounding of median centers, or other features emphasize median locations.

Back In Diagonal Parking

A Parking Solution

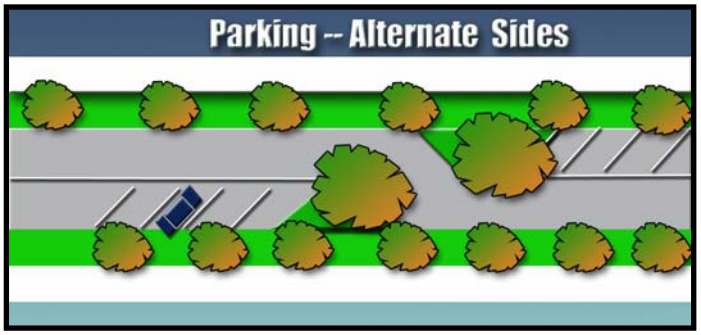
Santa Barbara streets have many problems and challenges with on-street parking. A shortage in many locations results in undesired double parking, blocking driveways, and parking too close to intersections. When people park too close to intersections they make it difficult for emergency responders to enter local streets, and for motorist to see to exit a local street.

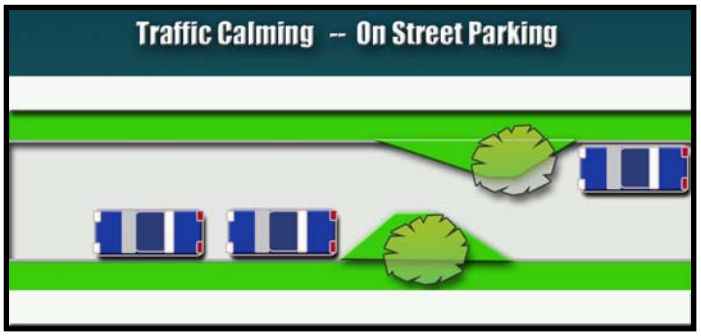
Fortunately, on most streets there is sufficient room to add more parking. Well over 30% of all Santa Barbara streets are wider than necessary. This results in speeding and risk to pedestrians. Some streets with parking on only one side can have parking on both sides. Others that have parallel parking can have diagonal parking on at least one side of the street. Traffic volumes, traffic types and the function of the street have to be considered when making changes.

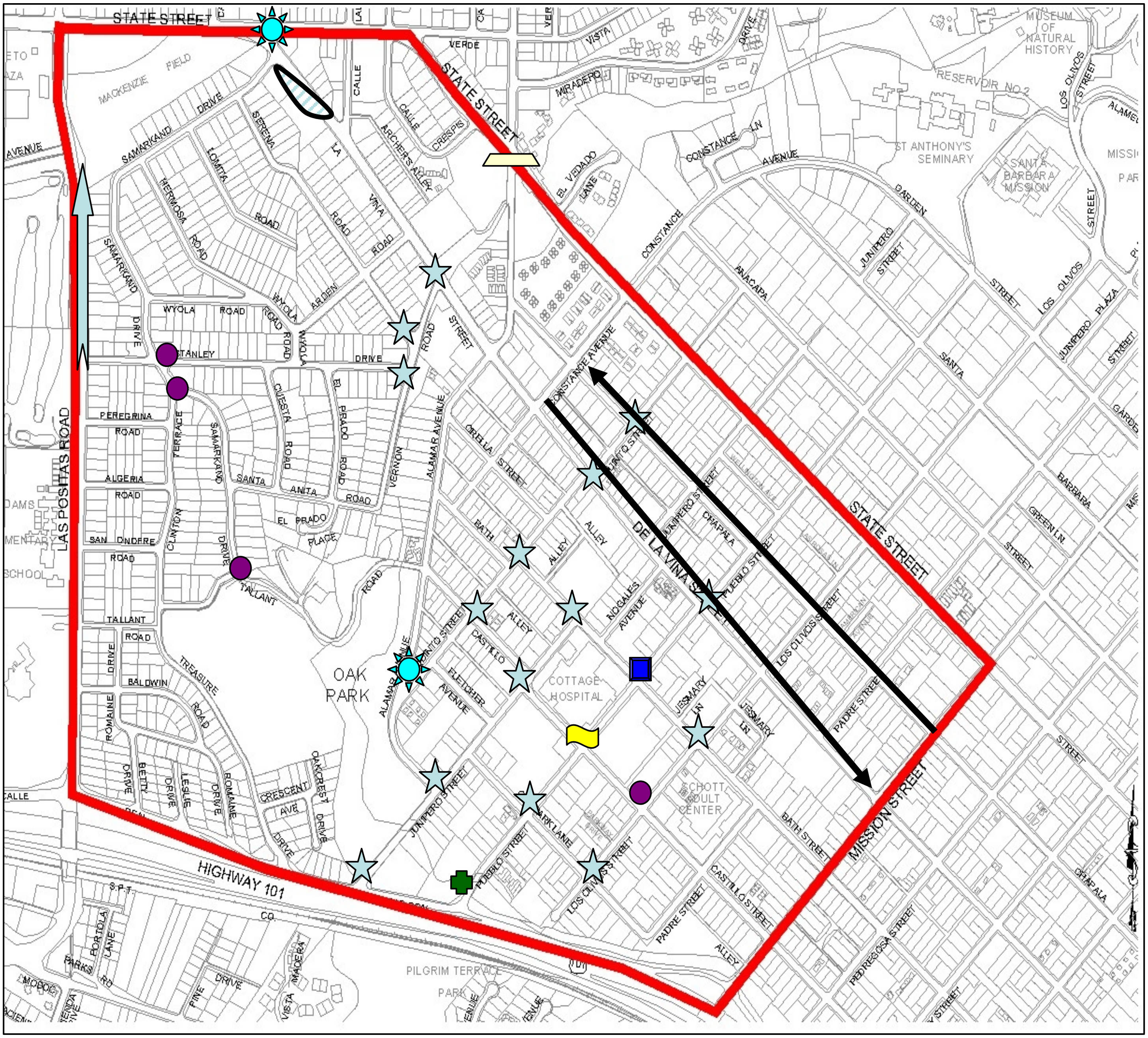
However, in all neighborhoods assessing the true parking, access and volume needs will result in 10-30% new and better on street parking, and reduced speed. When applying good parking design to these streets it will be possible to reduce speeding, especially on long blocks of 500 or more feet in length.

Very wide streets can have straight pull in parking as shown in the top photo. If the street is not as wide the second alternative may apply. On narrower streets diagonal parking is applied on alternative sides to make up for lost parking at the chicane. And on very narrow streets (24 feet or less) parking is switched from one side to the other. In no cases where desired is the absolute number of parking places reduced.

Santa Barbara should put in place new measures and special funding to work out details to provide for parking chicanes. Effective policies and methods are needed to address illegal/abandoned cars, and finding means of providing better managed on street parking.







STATE STREET
LAS POSITAS ROAD
OAK
PARK
COTTAGE
HOSPITAL
HIGHWAY 101
DE LA VINA STREET
MISSION STREET
ST ANTHONY'S
SEMINARY
SANTA
BARBARA
MISSION
MUSEUM
OF
NATURAL
HISTORY
RESERVOIR NO 2
SCHOTT
ADULT
CENTER
PILGRIM TERRACE
PARK